# Essential Skills for 21st Century Teachers in Turkey: Uludag University Example

**Şehnaz Baltaci Göktalay, Sezen Özeke**

**Abstract**

This article explores applications of 21st century skills in higher education curriculum, specifically in teacher education. The authors discuss why preservice teachers need to be taught in an environment that students will be equipped with the 21st century skills and competences which help them to develop their own teaching skills and the technology skills of their students. The study is based on document analysis methodology and is focused on higher education competences in Turkey. The paper ends with implications for teacher education institutions which will implement 21st century skills competences in their curriculum.

**Key words:** 21st century skills, Turkish higher education, teacher education, competency, curriculum

## Introduction

Today's students, in our context pre-service teachers, were born in a variety of technologies and have been described as "digital natives" (Prensky, 2001). This generation speak the language of technology from birth. Therefore, teachers must be familiar and comfortable using digital technology in order to keep up with an ever-changing tech-

nology context and students who no longer process information sequentially (Lambert and Cuper, 2008).

Although such technology provides easy and fast communication, it is also important for pre-service teachers to think critically about their learning and teaching so they can realize their place in a rapidly changing society. Initiatives such as the Partnership for 21st skills (www.21stcenturyskills.org) and the Cisco/Intel/Microsoft assessment and teaching of 21st century skills project (www.atc21s.org) also advocates that new century will demand new set of skills and competences for teachers, educational researchers, policy makers, politicians, and employers in order for them to function effectively at work and as citizens (Ananiadou and Claro, 2009). Supporters of 21st century skills movement also argue for the need for school reforms meeting new society's needs.

Besides school reforms in terms of well-chosen and planned courses that include core teaching knowledge, it is also important to organize prospective teachers' skills and experiences so that they can apply these skills in the classroom. This part is probably the most difficult aspect of constructing teacher education programs. In order for prospective teachers to learn how to teach in 21st century, three challenges are reported (Darling-Hammond, 2006a): first, teachers of 21st century need to know that teaching is quite different from their own experience as students in traditional classrooms; second, teaching now requires not only to "think like a teacher" but also to "act as a teacher", meaning that teachers need not only to know but also to be able to do a variety of things simultaneously; and finally new teachers should have the ability to deal with complex problems of the classroom and provide prompt respond in order to keep up with the changing nature of today's classrooms. A study examining seven exemplar teacher education programs shows that all programs had common features. Darling-Hammond (2006b) reports them as:

- a common, clear vision of good teaching that permeates all course work and clinical experiences, creating a coherent set of learning experiences;
- well-defined standards of professional practice and performance that are used to guide and evaluate course work and clinical work;
- a strong core curriculum taught in the context of practice and grounded in knowledge of child and adolescent development and learning, an under- standing of social and cultural contexts, curriculum, assessment, and subject matter pedagogy;
- extended clinical experiences—at least 30 weeks of supervised practicum and student teaching opportunities in each program—that are carefully chosen to support the ideas presented in simultaneous, closely interwoven course work;
- extensive use of case methods, teacher research, performance assessments, and portfolio evaluation that apply learning to real problems of practice;
- explicit strategies to help students to confront their own deep-seated beliefs and assumptions about learning and students and to learn about the experiences of people different from themselves;

- strong relationships, common knowledge, and shared beliefs among school- and university-based faculty jointly engaged in transforming teaching, schooling, and teacher education.

As it can be seen from this report, 21st century skills that new teachers should have are different from 20th century skills due to the emergence of sophisticated technologies. These technologies, commonly called Web 2.0 technologies, are changing both the nature of "perennial skills" and creating new "contextual skills" unique to digital natives (Dede, 2010). The distinction between perennial skills and contextual skills is important, because the curriculum of most of the teacher education programs include perennial skills, very few of them are able to adapt their curriculum to contextual skills. Unlike 20th century teachers who design courses to present information to solve routine problems, 21st century teachers and their students should be able to filter data from their experiences and contextual skills to think critically and solve sophisticated problems.

In traditional teacher education curriculum, little effort is given to build communication skills to engage well-structured interactions. The common method is face to face communication in which students develop few capabilities through dialogue within a common workspace. In the new curriculum though, teachers and students need to meet all kinds of communication tools to experience a variety of Web 2.0 technologies and find their best way of learning and teaching method.

Beyond curricular issues, current teacher education programs lack 21st century teaching and learning requirements in part because assessment tests do not measure 21st century competences. Tests usually measure perennial skills but do not give students an opportunity to reflect their knowledge and experiences to transfer their understandings to real life situations.

Another reason of 21st century skills underemphasized in today's teacher education curriculum is the lack of professional development. Because new teachers, policy makers and local authorities need to unlearn previous beliefs, assumptions and methods applicable in 20th century schools, and learn new ways of thinking, communicating, problem solving, and life and career skills. In order to alter schooling deeply, it takes more than the superficial changes.

## The Framework for 21st Century Skills

Although there are a few different frameworks for 21st century skills, such as, Partnership for 21st Century Skills (2006), the Metiri Group and NCREL (2003), the American Association of Colleges and Universities (2007), and the Organization for Economic Cooperation and Development (2005), in the current study P21 was used as the framework since it is the most detailed and widely adopted framework than any of the others.

## Partnership for 21st Century Skills (P21)

The P21 Framework represents both 21st century student outcomes (as represented by the arches of the rainbow) and support systems (as represented by the pools at the bottom). The elements (skills, competences, knowledge, etc.) in this framework are the ones new teachers/students need to master to succeed in the 21st century schools.

The curriculum of teacher education programs must integrate these elements by blending content knowledge, skills, expertise and literacies into the courses. On order to be successful, new teachers must be able to master core subjects. The core subjects include:

- English, reading or language arts
- World languages
- Art
- Mathematics
- Economics
- Science
- Geography
- History
- Government and civics

Furthermore, according to P21 framework students must be able to understand academic content at higher levels. It is suggested that this can be done by integrating interdisciplinary themes into the core subjects. The following are some of the topics that teacher education programs should integrate into the core subjects:

- Global awareness
- Financial, Economic, Business and Entrepreneurial literacy
- Civic literacy
- Healthy literacy
- Environmental literacy

Other important topics that educators should integrate into their lessons include:

- Learning and Innovation Skills
- Creativity and innovation
- Critical thinking and problem solving
- Communications and collaboration
- Collaborate with others
- Information, media and technology skills
- Life and Career skills

## Methodology

The study is based on document analysis. First, curriculum of teacher education programs at Uludag University Faculty of Education (UUFoE) is examined. Both core courses and elective courses are analyzed to find out if they cover the necessary skills, competences and knowledge that new teachers need to master to be successful in 21st century schools. Second, the university's educational strategy plans are examined to see how much they cover 21st century skills elements in the framework. Final examination focused on the implementation of curriculum change throughout UUFoE. Courses and their final outputs were given as examples to show their consistency with 21st century skills requirements.

## Findings

Document analysis was begun with course contents and finding the match in the P21 Framework. The elements of the Framework and related courses are presented in below tables. Table 1 shows Learning and Innovation Skills (LIS) and the related courses at UUFoE. Learning and innovation skills increasingly are being recognized at the Faculty of Education. For example, Entrepreneurship course is a core course that all 3rd year students have to take during their university life. It is in the University's strategy plan that graduates will have adequate knowledge about entrepreneurship and have the necessary skills to create and act innovative ideas in their work life after graduation. It is also offered Project Development and Management courses for two semesters so that teacher trainees will be able to plan, develop, and implement innovative projects at schools. Youth Projects Development course is another course offered for 2nd year teacher trainees to present European Union's funds on Youth Projects, especially projects which K-12 schools can involve as a partner. In addition, Creative Drama course has a considerable place in supporting innovative thinking skills at UUFoE.

Table 1
*Courses related to P21 Learning and Innovation Skills*

| Courses offered at Faculty of Education | Target Group | Learning and Innovation Skills Covered |
|---|---|---|
| • Entrepreneurship | all 3rd year students – approx. 10 000 students throughout the university | • Use a wide range of idea creation techniques (such as brainstorming)<br>• Create new and worthwhile ideas (both incremental and radical concepts)<br>• Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts<br>• Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur<br>• Develop, implement and communicate new ideas to others effectively<br>• Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work<br>• Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas<br>• View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes |
| • Project Development and Management I-II<br>• Youth Projects Development | 4th year students – approx 80 students/year<br>2nd year students – approx 80 students/year | • Create new and worthwhile ideas (both incremental and radical concepts)<br>• Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts<br>• Develop, implement and communicate new ideas to others effectively<br>• Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur |
| • Computer Literacy I–II | all 1st year students at Faculty of Education – approx 1200 students/year | • Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur<br>• View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes |
| • Creative Drama | 1st and 3rd year students at Faculty of Education – approx 200 students/year | • Use a wide range of idea creation techniques (such as brainstorming)<br>• Create new and worthwhile ideas (both incremental and radical concepts)<br>• Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts |

Table 2 shows Information, Media and Technology Skills (IMTS) and the related courses at UUFoE. Computer Literacy I-II courses are offered to all 1st year teacher trainees in order to provide necessary technology skills. In addition, there are a variety of courses providing IMTS at the Faculty. Some of them are presented at table 2 with covered IMTS goals.

Table 2
*Courses related to P21 Information, Media and Technology Skills*

| Courses offered at Faculty of Education | Target Group | Information, Media and Technology Skills Covered |
|---|---|---|
| • Computer Literacy I-II | 1st year students at Faculty of Education – approx 1200 students/year | • Understand and utilize the most appropriate media creation tools, characteristics and conventions<br>• Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments<br>• Use technology as a tool to research, organize, evaluate and communicate information<br>• Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy<br>• Apply a fundamental understanding of the ethical/ legal issues surrounding the access and use of information technologies |
| • Teaching Science and Technology | all 3rd year students at Faculty of Education Dept. of Primary Education– approx 200 students/year | • Use information accurately and creatively for the issue or problem at hand<br>• Manage the flow of information from a wide variety of sources<br>• Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information |
| • Instructional Technologies and Material Design | all 2nd year students at Faculty of Education – approx 1200 students/year | • Understand and utilize the most appropriate media creation tools, characteristics and conventions<br>• Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments |
| • Computer Programming Languages I–II | 2nd year students at Faculty of Education – Dept. of CEIT – approx. 200 students/year | • Use technology as a tool to research, organize, evaluate and communicate information |
| • Graphics and Animation in Education | 2nd year students at Faculty of Education – Dept. of CEIT – approx. 100 students/year | • Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy |

It is more important to have critical thinking skills and content knowledge in todays' life and work environment. In order to be successful, new teachers should be able to develop adequate life and career skills (LCS). Table 3 presents some examples of the current courses offered at UUFoE providing LCS. Especially Community service Application course is the perfect match in this category. Entrepreneurship is another course covering LCS.

Table 3
*Courses related to P21 Life and Career Skills*

| Courses offered at Faculty of Education | Target Group | Life and Career Skills Covered |
|---|---|---|
| • Community Service Applications<br>a. Identify current problems of society and prepare projects as a solution to them<br>b. Develop positive attitudes to take part as volunteers in community service activities<br>c. Develop projects for social problems<br>d. Organize conferences, seminars, concerts or exhibitions<br>e. Give seminars to different stakeholders in the society | all 3rd year/4th year students at Faculty of Education – approx. 1200 students/year | • Set goals with tangible and intangible success criteria<br>• Balance tactical (short-term) and strategic (long-term) goals<br>• Utilize time and manage workload efficiently<br>• Monitor, define, prioritize and complete tasks without direct oversight<br>• Go beyond basic mastery of skills and/or curriculum to explore and expand<br>• One's own learning and opportunities to gain expertise<br>• Demonstrate initiative to advance skill levels towards a professional level<br>• Demonstrate commitment to learning as a lifelong process<br>• Reflect critically on past experiences in order to inform future progress<br>• Act responsibly with the interests of the larger community in mind |
| • Project Development and Management I-II<br><br>• Youth Projects Development | 4th year students – approx 80 students/year<br><br>2nd year students – approx 80 students/year | • Set goals with tangible and intangible success criteria<br>• Balance tactical (short-term) and strategic (long-term) goals<br>• Utilize time and manage workload efficiently |
| • Entrepreneurship | all 3rd year students – approx. 10000 students throughout the university | • Set and meet goals, even in the face of obstacles and competing pressures<br>• Prioritize, plan and manage work to achieve the intended result<br>• Demonstrate additional attributes associated with producing high quality products<br>• Use interpersonal and problem-solving skills to influence and guide others toward a goal<br>• Leverage strengths of others to accomplish a common goal<br>• Inspire others to reach their very best via example and selflessness<br>• Demonstrate integrity and ethical behavior in using influence and power |

Mastery of core subjects and 21st century themes is essential for all students (new teachers) in the 21st century. In addition to these subjects, it also important to promote global awareness, civic literacy, entrepreneurial literacy, health literacy and environmental literacy. Table 4 presents how our curriculum covers those core subjects and literacies.

Table 4
*Courses related to P21 Core Subjects*

| Courses offered at Faculty of Education | Target Group | Core Subjects Covered |
|---|---|---|
| • Community Service Applications | all 3rd year/4th year students at Faculty of Education – approx. 1200 students/year | • Using 21st century skills to understand and address global issues<br>• Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts<br>• Understanding other nations and cultures, including the use of non-English languages<br>• Participating effectively in civic life through knowing how to stay informed and understanding governmental processes<br>• Exercising the rights and obligations of citizenship at local, state, national and global levels<br>• Understanding the local and global implications of civic decisions |
| • Environmental Education | all 2nd year students at Faculty of Education Dept. Of Primary Education – approx. 100 students/year | • Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air,<br>• Climate, land, food, energy, water and ecosystems<br>• Demonstrate knowledge and understanding of society's impact on the natural world (e. g., population growth, population development, resource consumption rate, etc.)<br>• Investigate and analyze environmental issues, and make accurate conclusions about effective solutions<br>• Take individual and collective action towards addressing environmental challenges (e. g., participating in global actions, designing solutions that<br>• inspire action on environmental issues) |
| • Entrepreneurship | all 3rd year students – approx. 10 000 students throughout the university | • Knowing how to make appropriate personal economic choices<br>• Understanding the role of the economy in society<br>• Using entrepreneurial skills to enhance workplace productivity and career options |

## Conclusion

In many countries the introduction of 21st century skills and competencies in the teacher education curriculum or standards in the context of a general reform. Turkey is one of them. Especially after FATIH project, a project providing tablets and smartboards in every classroom nationwide, ICT-related and entrepreneurial skills gained more attention. Teaching ICT as a separate school subject is essential in Turkey, unlike countries that have reached a certain level of "ICT-maturity" where ICT has penetrated people's lives, including schools (Ananiadou and Claro, 2009). It is the same with entrepreneurship in education. It is a fairly new subject in Turkey and it is given a great importance in educational reforms and curriculum of teacher education. In Turkey, there are national guidelines for teaching specific subjects or competencies, as schools and teachers are dependent and expected to follow these guidelines.

Teacher trainees are expected to be familiar with their country's curricular objectives, covering 21st century skills, and to use these documents when planning their lessons, so it is important to include these skills in their undergraduate training. In addition, there should be in-service training programs in place for familiarizing teachers with the new policies and teaching and assessment of 21st century skills.

## References

American Association of Colleges and Universities. (2007). *College learning for the new global century*. Washington, DC: AACU.

Ananiadou, K. & Claro, M. (2009). "21st Century Skills and Competences for New Millennium Learners in OECD Countries", *OECD Education Working Papers*, No. 41, OECD Publishing. http://dx.doi.org/10.1787/218525261154

Darling-Hammond, L. (2006a). Constructing 21st-century teacher education. *Journal of Teacher Education*, 57(3), 300–314.

Darling-Hammond, L. *(2006b). Powerful teacher education: Lessons from exemplary programs.* San Francisco*:* Jossey-Bass.

Dede, C. (2010). *Technological supports for acquiring 21st century skills*. In E. Baker, B. McGaaw, & P. Peterson (Eds.), International Encyclopedia of Education, 3rd Edition. Oxford, England: Elsevier. Available online at http://learningcenter.nsta.org/products/symposia_seminars/iste/files/Technological_Support_for_21stCenturyEncyclo_dede.pdf, accessed 30 June 2015

Lambert, J. & Cuper, P. (2008). Multimedia technologies and familiar spaces: 21st-century teaching for 21st-century learners. *Contemporary Issues in Technology and Teacher Education*, *8*(3), 264–276.

Metiri Group & NCREL. (2003). *EnGauge 21st century skills: Literacy in the digital age*. Chicago, IL: NCREL.

Organization for Economic Cooperation and Development. (2005). *The definition and selection of key competencies: Executive summary*. Paris, France: OECD.

Partnership for 21st Century Skills. (2006). *A state leader's action guide to 21st century skills: A new vision for education*. Tucson, AZ: Partnership for 21st Century Skills.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5).
*The Article is dedicated to Project The VOICE of European TeacherS (VOICES), 526613-LLP-2012-NL-Comenius-CNW.*

## Acknowledgement

*The Article is dedicated to Project The VOICE of European TeacherS (VOICES), 526613-LLP-2012-NL-Comenius-CNW.*

**Contact:**
Assoc. Prof. Dr. Sezen Özeke
Dr. Şehnaz Baltaci Göktalay
Uludag University
Faculty of Education
Music Education Dept.
16059 Görükle/BURSA
Turkey
E-mail: sezenozeke@uludag.edu.tr
sehnazb@hotmail.com